

# **Oven with horizontal rotating conveyor.**

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## **Also published as:**

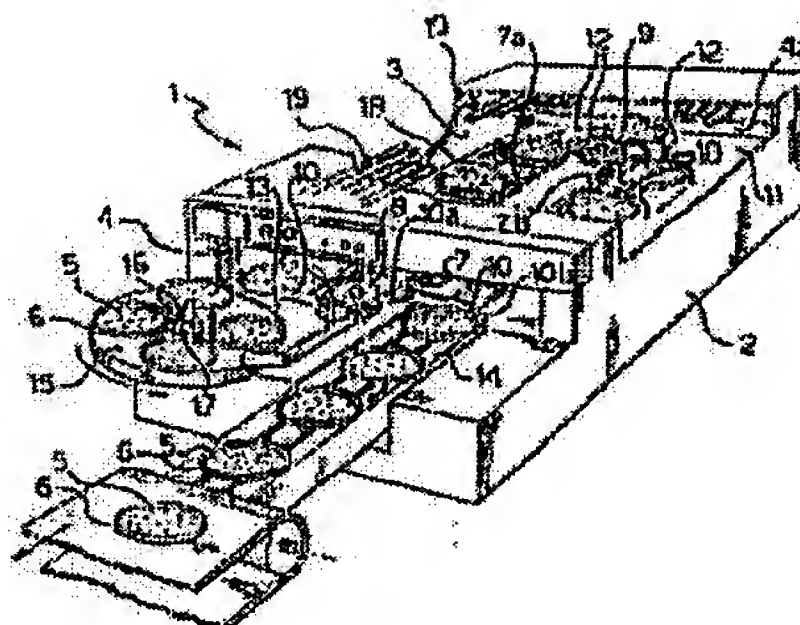
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GR3002613 (T3)

## **Cited documents:**

US2889786 (A)  
FR2428977 (A1)  
FR1371601 (A)  
FR2345370 (A1)

## **Abstract of EP 0338995 (A1)**

An electric oven (1) for continuously baking pizzas (5) placed in baking tins (6) comprises a horizontal endless conveyor (18) with trays (10) having runs (7a,7b) which extend longitudinally in a baking chamber (3) accessible through a single opening (4). A horizontal runway (12) is provided for the baking tins (6) which extends in the chamber (3) below the conveyor trays (10) and has end sections extended outwards from the chamber (3) through the opening (4) thereof to define respective loading (13) and unloading (14) areas for the pizzas (5); and a turntable (15) coplanar with the runway (12) is supported in the loading area (13) at a location interfering with the path of travel of the trays (10) of the conveyor (18) to provide a pizza (5) buffer storage area for the conveyor (18).



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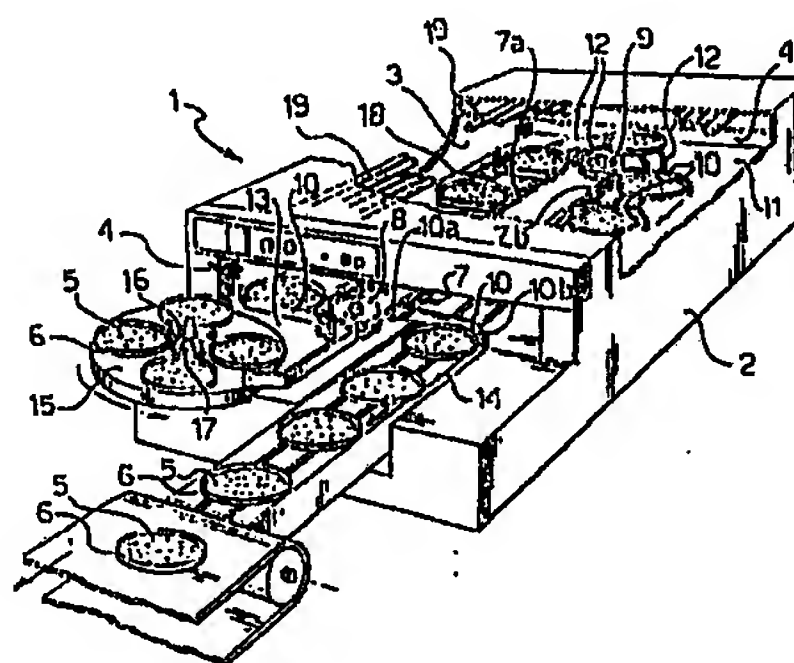
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The title of the invention has been amended (Guidelines for Examination in the EPO, A-III, 7.3).

64 **Oven with horizontal rotating conveyor.**

67 An electric oven (1) for continuously baking pizzas (5) placed in baking tins (6) comprises a horizontal endless conveyor (18) with trays (10) having runs (7a,7b) which extend longitudinally in a baking chamber (3) accessible through a single opening (4).

A horizontal runway (12) is provided for the baking tins (6) which extends in the chamber (3) below the conveyor trays (10) and has end sections extended outwards from the chamber (3) through the opening (4) thereof to define respective loading (13) and unloading (14) areas for the pizzas (5); and a turntable (15) coplanar with the runway (12) is supported in the loading area (13) at a location interfering with the path of travel of the trays (10) of the conveyor (18) to provide a pizza (5) buffer storage area for the conveyor (18).



## Description

This invention relates to an electric oven for baking pizzas, as placed in respective baking tins, on a continuous basis, which oven is of a type comprising a baking chamber accessible through a single opening of said oven, a powered endless conveyor for transferring a plurality of pizzas placed in respective baking tins into and out of said baking chamber, said conveyor being accessible from outside the oven at a loading area for the pizzas to be baked and an unloading area for the baked pizzas.

In order to make continuously pizzas of comparable quality and fragrance to traditional, newly prepared pizzas, additionally to an appropriate setting of such interlinked factors as the temperature and humidity of the oven employed, and the residence time of each pizza inside the oven, an ability to control such factors to suit the size and weight of each pizza to be baked and the nature of the ingredients that went into its preparation is demanded.

Electrically operated baking ovens utilized heretofore for this purpose are essentially of the tunnel type, and although widely utilized, have some well-recognized drawbacks from the engineering and economics standpoints. In fact, a first and most evident drawback is represented by the relatively large size of the oven, even when intended for low to medium outputs.

Another well-recognized drawback is the limited output potential of the oven, which are generally unable to meet peak demands for pizzas, unless made oversize or run in banks with other similar ovens.

It is a primary object of this invention to provide an electric oven for continuously baking pizzas in baking tins, which has such construction and performance characteristics as to overcome the above-noted drawbacks with which the prior art is beset.

This and other objects, to become apparent herein below, are achieved by an electric oven as indicated being characterized in that it comprises a conveyor with horizontal baking tin-entraining trays, having coplanar horizontal runs extending longitudinally in said baking chamber, a horizontal baking tin-carrying runway extending longitudinally in the baking chamber below the trays of said conveyor and having end sections extended outwards from the baking chamber through said single opening of the oven, which end sections constitute said pizza loading and unloading areas, respectively, and a turntable coplanar with said runway, being supported in said loading area in a position thereon interfering with the path of travel of said conveyor trays.

According to a second aspect of the invention, the conveyor trays have a substantially concave sectional profile with the concave side facing in the running direction of the conveyor and adapted to engage a baking tin circumferentially.

Further features and advantages of the invention will be more clearly understood from the following detailed description of an embodiment of an electric oven for continuously baking pizzas, to be taken in conjunction with the accompanying illustrative and non-limitative drawing which shows in perspective a part-sectional view of an electric oven according to the invention.

With reference to the drawing view, an electric oven for continuously baking pizzas, generally indicated at 1, comprises a box-type parallelepipedic structure 2 wherein a baking chamber 3 is defined which is accessible from outside said oven through a single front opening 4 thereof.

A powered endless conveyor 18 for transferring pizzas 5 placed in baking tins 6 into and out of said baking chamber 3 comprises an endless chain 7 trained around, and driven by, sprocket wheels 8, 9 having respective vertical axes of rotation. The sprocket wheel 8 is a drive sprocket and located adjacent the front opening 4, whereas the sprocket wheel 9, which serves as a lay sprocket wheel, is supported rotatably at a location close to the bottom wall 4a of the baking chamber 3. The two working runs 7a, 7b of the chain 7 are horizontal in a common plane and extend longitudinally in the baking chamber 3, at a central location therein.

It should be noted that the chain 7 is held under tension by a conventional device, not shown, for taking up expansions resulting from thermal fluctuations within the baking chamber, as well as any backlash due to wear, for instance.

The upper links of the chain 7 have trays 10 attached thereto cantilever-fashion. In particular, these trays are substantially rod-shaped and provided at one end with a foot 10a through which they can be attached to the chain 7, and at the other end, with a sloping section 10b to thereby impart to the tray as a whole a substantially concave shape with the concave side facing in the direction of advance of the conveyor 18.

Within the baking chamber 3, in a position underlying the chain 7, the parallelepipedic structure 2 supports a shelf 11, on which a baking tin-supporting runway 12 is defined, using means which are known per se. This runway 12 spans substantially the entire length of the chain conveyor 7 but for that section thereof which lies adjacent the front opening 4, whereat said runway 12 has two discrete portions, respectively indicated at 13 and 14, which constitute a loading area and an unloading area, respectively, for the pizzas into and out of said oven.

In the loading area 13, the structure 2 supports a turntable 15, comprising a disk with a selected thickness removably keyed to an upright shaft (not shown) and drivingly connected to the power source for the chain conveyor 7. The turntable 15 is substantially coplanar with the baking tin runway 12 and supported in a position that would interfere with the path of travel of the trays 10.

A core piece 16 is removably mounted centrally on the turntable 15 which has a plurality of upstanding portions 17 forming, in cooperation with said core piece, a template for positioning a corresponding plurality of baking tins on said turntable.

The heat source for the baking chamber 3 is quite conventional: it may comprise, for example, a plurality of tubular radiating elements 19 laid longitudinally and supported, in an independent manner of one another, on the bottom and ceiling of the oven 1. Each of said elements may be arranged to be removable from and re-insertable into the baking chamber from the rear of the structure 2 of the oven according to the invention, thereby a possible replacement thereof would involve no disassembling of the structure.

The provision of the turntable 15 in the inlet area for the pizzas in baking tins (5-6) to the oven 1 of this invention, by providing a pizza buffer storage area for the conveyor, results in improved capacity of the oven, ensuring high rates of pizza baking to meet a high short-term demand therefor.

### Claims

1. An electric oven (1) for baking pizzas (5), as placed in baking tins (6), on a continuous basis, comprising a baking chamber (3) accessible through a single opening (4) of the oven, a powered endless conveyor for transferring a plurality of pizzas (5) placed in respective baking tins (6) into and out of said baking chamber (3), said conveyor being accessible from outside the oven (1) at a loading area for the pizzas to be baked and unloading area for the baked pizzas, characterized in that it comprises a conveyor (18) with horizontal baking tin-entraining trays (10), having coplanar horizontal runs (7a,7b) extending longitudinally in said baking chamber (3), a horizontal baking tin-carrying runway (12) extending longitudinally in the baking chamber (3) below the trays (10) of said conveyor (18) and having end sections extended outwards from the baking chamber (3) through said single opening (4) of the oven, which end sections constitute said pizza (5) loading (13) and unloading (14) areas, respectively, and a turntable coplanar with said runway (12), being supported in said loading area (13) in a position thereon interfering with the path of travel of the trays (10) of said conveyor (18).

2. An oven according to Claim 1, characterized in that the trays (10) of the conveyor (18) have a substantially concave section profile shape with the concave side facing the running direction of the conveyor (18) and adapted to engage a baking tin (6) circumferentially.

3. An oven according to Claim 2, characterized in that said trays (10) have a substantially rod-shaped structure provided at one end with a foot (10a) whereby they can be attached to the conveyor, and at the other end, with a curving section (10b) in the conveyor running

direction.

4. An oven according to Claim 1, characterized in that said turntable comprises a disk (15) supported rotatably in said loading area (13) at a location interfering with the path of travel of said trays (10), and a core piece (16) mounted removably at a central location on said disk (15) and having a plurality of upstanding portions (17), said core piece (16) forming substantially a template for positioning a corresponding plurality of baking tins (6) on said disk (15).

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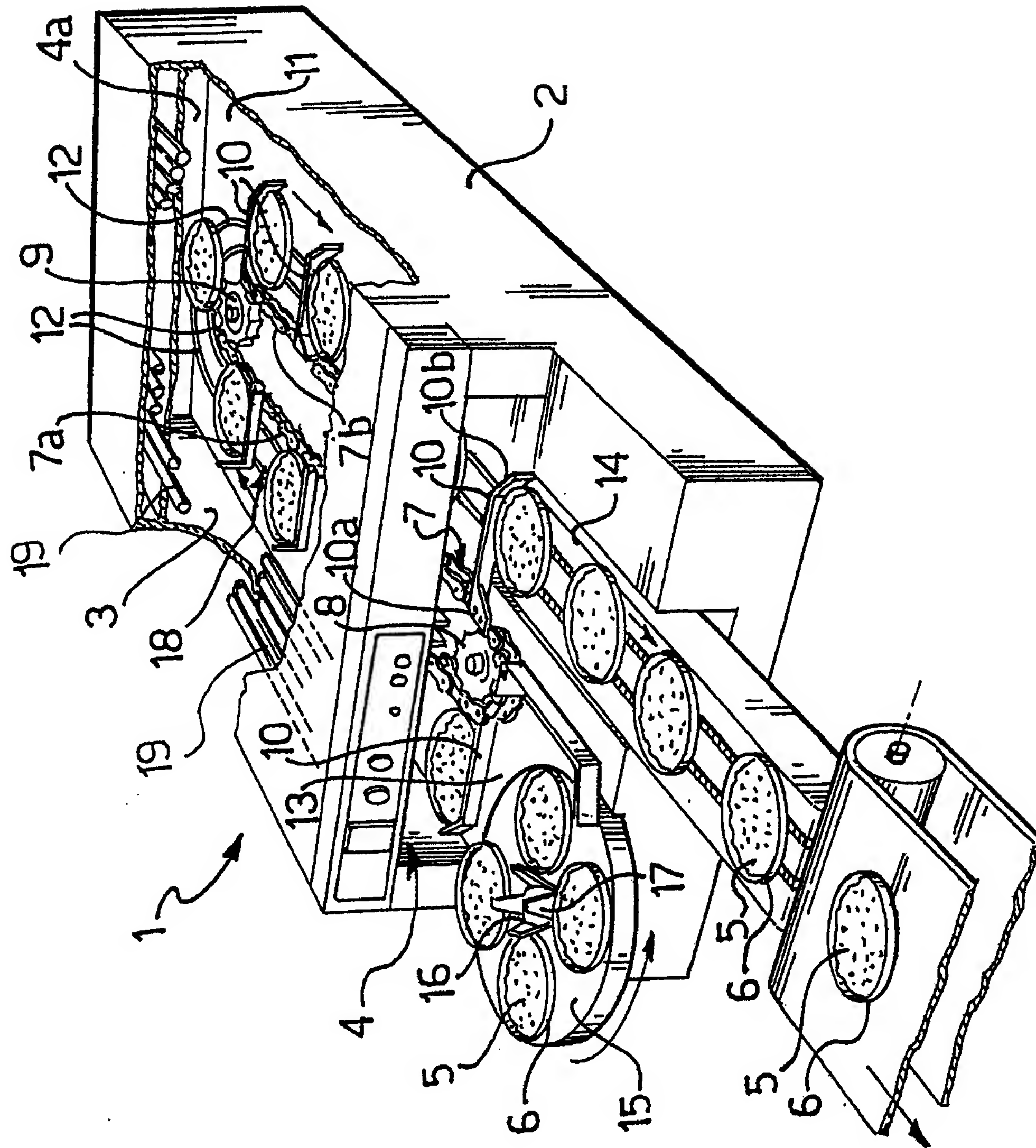
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European Patent  
Office

# EUROPEAN SEARCH REPORT

Application Number

EP 89 83 0035

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 4)
A	US-A-2 889 786 (J.A. MAFFEI et al.) ---		A 21 B 3/07
A	FR-A-2 428 977 (M. MILARD) ---		
A	FR-A-1 371 601 (E. CIPRIANI) ---		
A	FR-A-2 345 370 (J. CHARPENTIER et al.) -----		
			TECHNICAL FIELDS SEARCHED (Int. Cl. 4)
			A 21 B A 21 C B 65 G
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 09-05-1989	Examiner FRANKS N.M.
<div>CATEGORY OF CITED DOCUMENTS</div> <div>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</div> <div>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ..... &amp; : member of the same patent family, corresponding document</div>			

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